

Claims

1. A cutter insert having

- a front side (3) which during the metal-cutting machining of a bore surface points in the direction of rotation of a tool (10),
- an upper side (5) which in the mounted state faces away from the base body of the tool (10),
- at least two geometrically defined cutting edges which lie at the ends of a first side edge (15) of the front side (3) which is formed by the intersection line of the front side (3) with the upper side (5),

characterized in that one of the cutting edges is embodied as a roughing cutting edge (17) and the other cutting edge is embodied as a finishing cutting edge (19).

2. The cutter insert as claimed in claim 1, **characterized** in that different materials can be used for the different cutting edges.

3. The cutter insert as claimed in claim 1 or 2, **characterized** in that said cutter insert is embodied as

a disposable cutting tool tip, in that said cutter insert has an lower side (7) which lies opposite the upper side (5) and extends parallel thereto, in that the intersection line between the lower side and front side constitutes a second side edge (15') of the front side (3) at whose ends a roughing cutting edge (17') and a finishing cutting edge (19') are provided, and in that the roughing cutting edge (17) of the first side edge (15) lies diagonally opposite the roughing cutting edge (17') of the second side edge (15'), and the finishing cutting edge (19) of the first side edge (15) lies diagonally opposite the finishing cutting edge (19') of the second side edge (15').

4. The cutter insert as claimed in one of the preceding claims, **characterized** in that said cutter insert has a rear side (9) which lies opposite the front side (3), extends parallel thereto and is embodied in an identical way to the front side.

5. The cutter insert as claimed in one of the preceding claims, **characterized** in that the upper side (5) and preferably the lower side (7) of the cutter insert (1) are embodied as polygons, preferably as rectangles or squares.

6. The cutter insert as claimed in one of the preceding claims, **characterized** in that a bore (21)

which penetrates the upper side (5) and lower side (7) and which serves to receive a clamping screw (23) is provided.

7. A tool for metal-cutting machining of bore surfaces with at least one cutter insert (1s, 1's; 1u, 1'u, 1''u) which is let into the end face (41) of the tool (10) and at least one cutter insert (1s, 1's; 1u, 1'u, 1''u) which is let into the circumferential face (43) of the tool (10), said cutter inserts (1s, 1's; 1u, 1'u, 1''u) having at least two geometrically defined cutting edges, in particular with a cutting edge as claimed in one of claims 1 to 6, **characterized** in that one of the cutting edges of the cutter inserts is embodied as a roughing cutting edge (17, 17') and the other cutting edge of the cutter inserts is embodied as a finishing cutting edge (19, 19'), and in that the cutting edges are arranged at the two ends of a side edge (15, 15') of the cutter inserts.

8. The tool as claimed in claim 7, **characterized** in that the at least one cutter insert has a front side (3) which during the metal-cutting machining of a workpiece points in the direction of rotation, and an upper side (5) which in the mounted state faces away from the base body of the tool (10), in that the cutting edges which are active in the mounted state are arranged on the side edge (15, 15') of the cutter

insert which forms the intersection line of the front side (3) and of the upper side (5).

9. The tool as claimed in claim 7 or 8, **characterized** in that the at least one cutter insert is embodied as a disposable cutting tool tip, and in that every two cutting edges which lie diagonally opposite one another on the front side (3) are the same, and in that the cutting edges alternate along a sequence of adjacent side edges.

10. The tool as claimed in one of the preceding claims 7 to 9, **characterized** in that the at least one cutter insert has a rear side (9) which lies opposite the front side (3), extends parallel thereto and is embodied in an identical way to the front side (3).

11. The tool as claimed in one of the preceding claims 7 to 10, **characterized** in that the cutter inserts of a tool (10) are identical.

12. The tool as claimed in one of the preceding claims 7 to 11, **characterized** in that the at least one cutter insert which is let into the end side (41) of the tool (10) and is essentially tangential thereto serves for finish machining or roughing machining and the at least one cutter insert which is let into the circumferential face (43) of the tool (10) essentially

tangentially thereto serves for roughing machining or finish machining.

13. The tool as claimed in one of claims 7 to 12, **characterized** in that a setting device is provided which interacts with the at least one cutting edge in the end side (41) of the tool (10).

14. The tool as claimed in one of the preceding claims 7 to 13, **characterized** in that the cutter insert which serves for roughing machining moves in advance of the cutter insert which serves for finish machining - viewed in the axial direction and in the advancing direction.

15. The tool as claimed in of the preceding claims 7 to 14, **characterized** in that the cutter inserts which are let into the circumferential face (43) of the tool (10) are inclined - viewed in the longitudinal direction of the tool (10) - with the roughing cutting edge (17') which serves for roughing machining projecting beyond the circumferential face (43) of the tool (10), and the finishing cutting edge (19) which is provided on the same side edge (15') and serves for finish machining being set back with respect to the circumferential face (43).

16. The tool as claimed in one of the preceding claims 7 to 15, **characterized** in that the cutter inserts which are let into the circumferential face (43) of the tool (10) are inclined - viewed transversely with respect to the longitudinal direction of the tool (10) - with the roughing cutting edge (17'), which serves for roughing machining, of the front side (3) projecting further beyond the circumferential face (43) than the finishing cutting edge (19), which lags behind the roughing cutting edge (17) and serves for finish machining, of the rear side (9), said finishing cutting edge (19) being arranged, like the roughing cutting edge (17'), in the region of the side face (13) of the cutter insert (1).

17. The tool as claimed in one of the preceding claims 7 to 16, **characterized** in that two cutter inserts which lie in pairs opposite one another are provided, two in the end face (41) and two in the circumferential face (43).

18. The tool as claimed in one of the preceding claims 7 to 17, **characterized** in that three cutter inserts, preferably arranged at equal distances from one another are provided in the circumferential face (43), and in that between every two of said cutter inserts - preferably centrally - a cutter insert is provided in the end face (41).

19. The tool as claimed in one of the preceding claims 7 to 18, **characterized** in that three cutter inserts are provided in the end face (41) and two cutter inserts are provided in the circumferential face (43).

20. The tool as claimed in one of the preceding claims 7 to 19, **characterized** in that one cutter insert is provided in the end face (41) and four cutter inserts are provided in the circumferential face (43).

21. The tool as claimed in one of the preceding claims 7 to 20, **characterized** in that the at least one cutter insert 1s which is inserted into the end face (41) is tilted about an axis which is on the center point of the side faces (11, 13) and/or is tilted about an axis which perpendicularly from the center point of the front side (3) and rear side (9).

22. The tool as claimed in one of the preceding claims 7 to 21, **characterized** by at least one guide bar which is inserted into the circumferential face (43).

23. The tool as claimed in one of the preceding claims 7 to 22, **characterized** in that in each case a guide bar is provided between two cutter inserts which are inserted into the end face or circumferential face.